How do western nations compare to China in the transition to renewable energy?

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FULL TEXT

MATT GALLOWAY (HOST):

MG: Hello again. I'm Matt Galloway, and you're listening to The Current. China is the world's biggest greenhouse gas emitter by far. China is also dominating the world's green energy tech revolution, leading the way in every aspect of clean energy, from manufacturing of electric vehicles to the installation of wind turbines and solar panels. It is a potentially monumental shift, not just for China's domestic needs, but also for Beijing's influence over the global industry. And it's that last part that has some observers very concerned. Kate Logan is director of the China Climate Hub at the Asia Society Policy Institute, and Milo McBride is a fellow at the Carnegie Endowment for International Peace, specializing in the geopolitics of energy technology. Good morning to you both.

BOTH GUESTS: Good morning. Morning, Matt.

MG: Milo, you have said that it is difficult to overstate China's singular lead in clean energy technology. Give us a sense of the scale of what China has been able to pull off in this industry.

MILO MCBRIDE: Absolutely. I think the story we hear a lot about is what Xi Jinping refers to as the new three. And that is solar panels, batteries and electric vehicles. China produces about 80% of the world's solar panels and batteries, and a much higher portion of subcomponents reaching up to 99% in some examples. With that, though, that story is starting to spread. We are now seeing industries like wind, which has typically been in a European and American endeavour, really starting to propel forward with Chinese companies, that they are installing more wind capacity around the world than their Western counterparts, and even other facets of this supply chain, nuclear power, clean fuels needed in shipping. This is almost entirely becoming a story of Chinese movement forward. And I think to a lot of policymakers in the West, these trends have gone unnoticed until now when they are quite severe.

MG: I mentioned EVs in the introduction, and I had read China is the largest auto market in the world, that 40% of all cars sold last year in China were electric vehicles. Is that right?

MILO MCBRIDE: That's correct. We're even seeing numbers now that are up to 50%. And it's important to note as well for the listeners, in China, on an unsubsidized basis, 60% of the electric vehicles are now cheaper than their fossil counterparts. And we're seeing some pretty revolutionary breakthroughs in the EV technology. Recently announced was an EV that could charge in five minutes. Also, was demonstrated an electric vehicle that could drive for 12 hours on a single charge. And these EVs are not just impacting the Chinese market. They're being exported now across the world, even to emerging markets like Ethiopia and Brazil. So it's some astounding changes in the global auto market that are underway.

MG: Not to North America, though, which is something that perhaps we'll come back to. Kate, how do you understand that? I mean, how did China leapfrog the rest of the world when it comes to clean energy technology?

KATE LOGAN: Yeah, no, that's a great question. I think Milo did a great job of sort of painting a picture of where we are now. But going back to how this all started, it's important to note that subsidies and state support played a role, but they weren't the only factor leading China to get to where it is now. So maybe starting with back in 2015, there was a big policy called Made in China 2025, where China aimed a shift to high value manufacturing and also reduce its foreign dependence. So it chose a bunch of industries, including many of these new energy industries, such as electric vehicles, and adopted a number of measures to support their growth over time. But at the same time, China also has the advantage of having vertical integration in its supply chains, with a number of the different components of the supply chain all co-located in the same region, industrial clusters and the ability to have quick learning from one another because of that. And I think another aspect that's also often under-emphasized is that China has also adopted consistent signals on the demand side. So through policies that have targets for electric vehicle adoption, for instance, that gives a strong signal to all of these different industries that are trying to compete. And I think one really interesting piece of this is that China will often both pick winners while also fostering really, really intense competition. So there are so many different industries that are competing, and China will put, you know, support into certain ones that it thinks can potentially lead the market. But that intense competition will also drive improvements in both quality as well as drop prices. And, you know, we've gotten to a place where last year, in terms of the impact on China's economy, these new energy industries actually accounted for about a quarter of China's economic growth and about 10% of its GDP in 2024. So it's important to note that these are not just, you know, for climate purposes, but also really important from an economic perspective to China nowadays.

MG: What about for the climate purposes? Where has all of this activity, where has that left China's greenhouse gas emissions?

KATE LOGAN: Certainly. So of course, they're also really important from a climate perspective. And the latest data shows that for the first time, even though China is increasing its energy demand, its emissions are dropping. And that's really important because China has the most massive rollout of renewables globally. So last year, it installed about 277 gigawatts of solar, you know, an incredible amount of wind as well. And as we already talked about, over 50% of new vehicle purchases are now electric. So that's having a huge impact on the peaking of oil and petrol consumption. So this is already starting to show that even though China is increasing its energy demand, the growth of renewables is already so massive that it's eating into that energy demand enough to help China start to reduce its emissions.

MG: Milo, how does that compare, what China has pulled off, to the renewable energy strength of countries like the United States, for example?

MILO MCBRIDE: Well, the United States was a bit late to the game here. It had decades ago incubated many of these industries that we're describing. It had a robust battery solar startup ecosystem that went defunct. And in the past four years under the Biden administration, there was a massive rollout of industrial policy, two specific bills, one, the bipartisan infrastructure law, and the second, the Inflation Reduction Act, which were designed to re-secure an industrial base in the United States, and to hopefully allow the US to not fall so far behind, especially in some of these strategic sectors that have, as Kate pointed, economic points of importance, and the automobile sector being a crucial one. To look at where we are broadly right now in the US, the US has onshored about as much battery manufacturing as it needs to meet demand. This is known today as the battery belt. It's an ecosystem across the eastern part of the US, but there are still some supply chain vulnerabilities, upstream minerals, certain chemicals, certain subcomponents. With other technologies, it's a bit harder to see the US catching up. I will also lastly caution that the US has some pretty remarkable battery tech that could allow it to compete if that industry is given a real chance.

MG: Given a real chance.

MILO MCBRIDE: Yeah, please. Yeah.

MG: Well, I mean, that's important in part, Kate, because, I mean, you have a US president who talks about drill baby drill, right?

MILO MCBRIDE: We do. The US has a president who talks about drill baby drill, but also talks about mineral security, about an onshoring renaissance. And one of the more interesting dynamics currently underway for your listeners is that in the US right now, there is active talk about repealing, pretty unilaterally, these subsidy support measures I mentioned that would risk branding assets, they would risk cutting off mineral demand, they would risk manufacturing jobs, green jobs in red states. And I think this poses an interesting conundrum and perhaps paradox to the current environment in the United States.

MG: Kate, do you want to pick up on that? I mean, what has the return of Donald Trump done to, I guess, enable China's ability to dominate in this area?

KATE LOGAN: Certainly. So I think it's important to note that even before Donald Trump came into office, already, there were certain restrictions that were being put into place under the Inflation Reduction Act and even in the EU and other areas of the world to sort of navigate how countries could expand clean energy while trying not to depend overly on China. So already, there were tariffs in place on electric vehicles and also some concerns about the security elements, which had already pushed China to export even more of these clean energy products to other markets, especially the Global South. And in 2024, for the first time, about half of China's exports of new energy products actually went to the Global South, which was the highest share. And that share will likely continue to grow since many of these other markets are a little bit more agnostic towards some of those impacts. But in the US, I think one important piece to note under the most recent proposals to, you know, cut the clean energy tax credits under the IRA is that they also introduced even more stringent restrictions on what are called foreign entities of concern that would basically cut out all Chinese involvement in the market, including from companies that are very, very minimal share Chinese-owned, which would make it extremely difficult to continue to deploy clean energy in the US. So from a domestic perspective, obviously, that's something that will really hamper growth and also the US ability to have any sort of offer to the rest of the world from a clean energy transition. And this is important because that's what most countries want around the world. So if they're faced with, you know, a US that's offering fossil fuels and long-term contracts despite the US being a relatively volatile player diplomatically, versus clean energy products from China that are cheap, low cost and offer, you know, non-dependency from a fuel perspective, you know, it's sort of easy to see where they might choose.

MG: The world is watching this, and I want to talk more about why the world is paying close attention to China's dominance in this. And let's start with perspective from Canada. Kathryn Harrison is a professor of political science at the University of British Columbia. I want to sneak her into this conversation. Kathryn, good morning to you.

KATHRYN HARRISON: Good morning.

MG: What's the state of the renewable energy sector in this country?

KATHRYN HARRISON: Canada is very strong in terms of renewable electricity. About 85% of our electricity generation is non-emitting. And that means it's nuclear, hydro, wind and solar. And we are seeing really significant investments in

more renewables in almost all provinces. And, you know, partly that has been driven by a combination of things from the federal government, a carrot approach and a stick approach. The stick is a clean electricity regulation. The carrot is the promise of over $20 billion in funding to expand clean electricity and build ties between provinces. And that is starting to bear fruit. And we've got investment tax credits still to come, we hope, from the federal government. So clean electricity is really a comparative advantage for Canada looking to the economy of the future and one that will save households money as well based on most projections.

MG: Do you think there will be headwinds facing that industry given the talk, and part of this comes in the wake of tariffs and threats from the United States, of building more pipelines in this country, making this country more able to export its oil and gas, for example, beyond, you know, the United States? Is that going to impact the renewable energy sector in Canada?

KATHRYN HARRISON: Well, we'll see. I mean, I think Canada's political leaders are really earning their money these days because they're dealing with two concurrent challenges, the threat of US tariffs to Canada's economy, but also climate change and a global energy transition. And the decisions they make are going to have long-term consequences on both sides.

MG: I mean, you must be watching the Prime Minister very closely because, I mean, he's spoken extensively, written an entire book essentially around his belief in renewable energy, but also now as somebody who is leading that charge when it comes to the pipeline conversation.

KATHRYN HARRISON: Absolutely. And I mean, I think the big question for Canada is where's the global economy going and what will be our comparative advantages in that economy of the future? The US is increasingly isolated as we've been hearing in its denial of climate change, it's a rejection of clean energy, it's deregulation of sources of greenhouse gases. And they're also increasingly putting barriers to Canada's exports to the US. They're expanding their own oil and gas production. Where's the rest of the world going? Well, what's happening in China and the impact of China on the rest of the world, as we've been hearing, is really signalling the strength of that transition away from oil and gas. And we'd already heard last year from the International Energy Agency that anticipated that global consumption of both gas and oil would peak by 2030 under all of their scenarios, even the current policy scenarios. So that presents real challenges for Canada in looking to get more of our oil and gas to markets other than the US, because those projects will come to fruition just as we would expect global demand to decline. And we're relatively high-cost producers. So I think the question is, can we pivot and invest in some of our comparative advantages, including clean electricity, critical minerals, biofuels? You know, vehicles are a more challenging one at the moment, but one we're unlikely to abandon. So how do we pivot on that sector at the same time?

MG: Milo, can you just briefly go back to the why and talk a bit about how China is using what it has accomplished in clean tech and renewable energy to further its influence around the world?

MILO MCBRIDE: Yeah, I think the reason for why has become several fold. On a macro lens, one is just simply on cost, that the level of cost reductions in many of these technologies are now compelling from a pure markets perspective. The second, Kate alluded to, and I think is important, which is that in a new era of fragmentation, of heightened trade risks and political risks, having a non-fuel dependent energy source, one that is less vulnerable to shocks in global energy markets is actually an emerging facet of energy security. So I think those for countries around the world are two compelling reasons as to why. And for China, what it has allowed is just that. And it's important as well for our listeners to conceive of China's development of these industrial strengths was not out of some green altruism. It was largely an emerging idea of energy security, that China did not have a lot of oil and gas production, it would be vulnerable to these imports. And creating these insulated markets with wind, solar, nuclear power and electric

vehicles allows for this opportunity for it to be more energy secure. And I think that's one of the first reasons. And the second one is in relation to this long-term unknown of hydrocarbon demand. If we are entering these eras where what we're seeing in China now with oil consumption, petroleum consumption starting to peak, then how can hydrocarbon producing countries like the US, like Canada, actively hedge against that sort of scenario and have alternatives? And I think in Canada and the US, there are a bunch of emerging options that could help these countries develop alternative facets of strength.

MG: Kate, how concerned are you about the weaponization of this dominance from China, that if it has so much influence over the global renewables industry, that it could assert influence, that people are worried about not just, you know, banning the export of critical minerals, but there was a story last week around rogue communication devices that were found in some solar power converters. I mean, it was boiled down to them being possible kill switches that came out of China, but that people are worried about this, that there's a geopolitical concern, a security concern if China has that much influence over what is a growing energy sector and something that's going to be critical in the future, not just now.

KATE LOGAN: Sure. So I think from my perspective, what we really need to do is to right size what the risks actually are. And from a clean energy perspective, as Milo pointed out, you know, you don't have the same fuel dependency. So from that perspective, you're able to continue to have clean energy without, you know, the risk of fuel shutoffs once that clean energy is installed. So the risks from a supply chain perspective are really on the installation side. And then from more of a grid management perspective, there are also risks that have nothing to do with China. So the US grid infrastructure, for instance, has been impacted by other incidents and its stability threatened by factors that are not due to China's sort of malign influence or something like that. And the recent example I think was, you know, based on, you know, sort of one anonymous report. So I'd be curious to learn more, whether it was something that was, you know, just sort of inadvertent or actually something malign in terms of the report about the solar inverters. And I think another important factor to understand is that China's clean energy companies are commercially motivated. They're majority private companies in the Chinese context, which means that they're basically seeking markets and profits. So their influence around the world is very much driven by where they can find those markets. So, you know, if that's through exports, they'll export their products. If countries are struggling to deal with a flood of Chinese clean energy technologies in terms of imports, then you see even emerging economies like Brazil and Turkey adopting tariffs per se, but also at the same time welcoming Chinese foreign direct investment in factories from these companies like BYD and some of the other electric vehicle manufacturers. And what this does is it creates local jobs, but also enables these countries in some instances to even take advantage of the Chinese know-how and technology. And I think that's really where the opportunity lies, is can the rest of the world learn from Chinese expertise and know-how and clean energy? And there are ways to do that that limit, you know, Chinese influence by say, minority joint ventures or requirements around technology transfer, you know, even ironically, learning from China's playbook. But I think that's something that, especially as China looks toward many of these markets that are potentially a little bit less politicized in terms of their approach toward China, more agnostic, we'll see more examples of China accelerating that foreign direct investment, but hopefully also sharing the benefits of its clean energy revolution.

MG: Kathryn, do you think that there's an opportunity for China and Canada to work better together in this renewable sector? People are already beginning to speculate on what the new relationship between these two countries might be like. Is there an opportunity here in this sector?

KATHRYN HARRISON: There probably is, although I think clean electricity is one that we already do very well ourselves in Canada. And one of our advantages may be that we can offer sort of independent, stable democracy with an abundance of clean electricity that could appeal to investors who want, you know, energy intensive companies, those that want to be guaranteed of access to, say, European markets as carbon border adjustments are coming in. I think

where we might see more opportunity for collaboration with China would be potentially on electric vehicles, where, you know, we have built a manufacturing sector integrated with the US. We have made investments in electric vehicles counting on the whole North America sector going in that direction. The US is now applying tariffs, backing off on EVs. And the question on my mind is whether Canada might reduce our tariffs on Chinese EVs, they're half of ours in Europe, in exchange for some kind of investment in manufacturing within Canada.

MG: Milo, we're just about out of time. Just briefly, do you see an opportunity for the rest of the world to learn from what China has pulled off here? Or are there concerns that you think we need to be taking into consideration?

MILO MCBRIDE: I think some of the takeaways here are how we can, instead of trying to solely mimic what the Chinese have accomplished, how we can reflect on our own labour forces, our own points of industrial strength, and embolden those areas. For example, think about Canada as having some really robust know-how in sectors like nuclear power, which the US even lags in, as well as geothermal drilling developments. This is an exciting new energy technology that some Canadian startups are actually leading the way on. And that's because of their know-how from the oil and gas sector. So these are a couple of examples, but I think that's the macro takeaway here of how do we play to our strengths? How do we pragmatically find low carbon hedges that work within our best labour forces and our economy?

MG: It's good to speak with you all about this. This is really, really interesting. Thank you very much.

KATE LOGAN: Thanks so much, Matt.

KATHRYN HARRISON: You're welcome.

MG: Kate Logan is director of the China Climate Hub at the Asia Society Policy Institute. Milo McBride, a fellow at the Carnegie Endowment for International Peace. And Kathryn Harrison is a professor of political science at the University of British Columbia. That's The Current for this Tuesday, the 20th of May. Q is up next on CBC Radio One. We heard earlier about cats, one cat in particular that has some behavioural issues. The owner of said cat has chosen to stick it out. They've made some good progress. We will leave you. With a song for the cats. This is The Cure. I'm Matt Galloway. Thanks for listening to The Current. We'll see you tomorrow.

[Song: "The Lovecats" by The Cure]

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